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# Report of the National Committee on Micrometry.

Dr. Lester Curtis, Secretary *pro tem.*, for the National Committee on Micrometry, presented the following report:

The National Committee on Micrometry would respectfully submit the following report to the American Society of Microscopists:

We would recommend the adoption as a standard by the Society of the bar placed in our possession by Dr. R. H. Ward, Secretary of the committee, and adopt without change the accompanying report of Prof. Hilgard, Superintendent of the United States Coast Survey, and Director of the Bureau of Weights and Measures, in accordance with the following motion prepared by Dr. Ward:

*Resolved*, That the bar prepared by the United States Bureau of Weights and Measures as a standard for micrometry be accepted, and that a sub-committee of three be appointed to secure copies on glass for such societies as may desire them.

*Resolved*, That the following report be tendered to the American Society of Microscopists: The national committee on micrometrv having received from the United States Bureau of Weights and Measures an excellently ruled bar designed and tendered by the Bureau as a standard for micrometry, and believing that such a standard should be subject to the approval and sanction of the Society, hereby tenders the standard to the Society with the recommendation that it be accepted and adopted as a basis for future studies and discussions in micrometry.

## PROF. HILGARD'S REPORT.

### CENTIMETER SCALE A, 1882.

This scale is divided into ten millimeters, each division being marked by three lines distant from one another ten microns and the measurement is to be made from the mean position of one triplet of lines to that of another. The first millimeter is again divided in the same manner into tenths of millimeters. The first tenth of a millimeter is subdivided into ten spaces of ten microns each. There are thirteen of these lines at the beginning of the centimeter, the first tenth of a millimeter being measured from the mean of the first three to the mean of the eleventh, twelfth and thirteenth. The scale is engraved on a piece of platin-iridium made by Matthey, and containing 20 per cent. of iridium. The coefficient of expansion of this metal from 0 to 100 degrees C., according to Ste. Clair Deville and Mascart [Annales de l'Ecole Normale, second series, tome VIII., p. 9], is 8.778μ per degree centigrade per meter. But at ordinary temperatures it is no doubt somewhat smaller. The whole centimeter has been found to be 2.18μ shorter than Glass Centimeter No. 1 (Dec. 25, 1878), at 65 degrees F. and also at 70 degrees F., the two centimeters having sensibly the same coefficient of expansion at that temperature. This Glass Centimeter No. 1 (1878, Dec. 25,) is 1.61 microns longer than a mean centimeter of glass, decimeter scale No. 4. This mean centimeter is provisionally taken to be 2.80μ too long at 70 degrees F. We can refer this length to a wave length of light more accurately than to the meter—namely, the correction just given makes the wave length of Kirkhoff, 1,200.6, to be 0.5624918μ in air at 30 inches reduced pressure and 70 degrees F. (This value is subject to future correction).

The corrections to the different divisions of the scale A, 1882, at 70 degrees F. are as follows:

| | |
|---|---|
| First line to second line, too long | 0.08μ |
| Second line to third line, too short | 0.34 |
| Third line to fourth line, too short | 0.05 |
| Fourth line to fifth line, too short | 0.09 |
| Fifth line to sixth line, too long | 0.41 |
| Sixth line to seventh line, too short | 0.20 |
| Seventh line to eighth line, too short | 0.39 |
| Eighth line to ninth line, too long | 0.19 |
| Ninth line to tenth line, too long | 0.05 |
| Tenth line to eleventh line, too short | 0.20 |
| Eleventh line to twelfth line, too long | 0.18 |
| Twelfth line to thirteenth line, too short | 0.23 |

### TENTHS OF MILLIMETERS.

| | | | |
|---|---|---|---|
| First, too short | 0.54μ | Sixth, too short | 0.52μ |
| Second, too short | 0.33 | Seventh, too short | 0.37 |

| | | | |
|---|---|---|---|
| Third, too short | 0.65μ | Eighth, too short | 0.48μ |
| Fourth, too long | 0.10 | Ninth, too short | 0.41 |
| Fifth, to short | 0.07 | Tenth, too long | 0.16 |

MILLIMETERS.

| | | | |
|---|---|---|---|
| First, too short | 0.31μ | Sixth, too long | 0.87μ |
| Second, too short | 0.27 | Seventh, too long | 0.53 |
| Third, too short | 0.27 | Eighth, too long | 0.49 |
| Fourth, too long (F. 55) | 0.28 | Ninth, too long | 0.28 |
| Fifth, too long | 0.45 | Tenth, too long | 0.19 |